

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 (Currently Amended). A genetically stable, ~~transformed-Lemnaceae~~ plant that has been transformed by an Agrobacterium-mediated method, and progeny thereof that have inherited the transformation.

2 (Currently Amended). A transformed *Lemnaceae* plant according to Claim 1, of the genus *Spirodela*, *Lemna* or *Wolffia*.

3 (Original). A transformed *Lemnaceae* plant according to Claim 2, being *Spirodela punctata* of strain 8717.

4 (Previously Presented). A transformed *Lemnaceae* plant according to any one of Claims 1 to 3, that is transformed so as to be antibiotic resistant.

5 (Original). A transformed *Lemnaceae* plant according to Claim 4, being resistant to kanamycin.

6 (Previously Presented). A transformed *Lemnaceae* plant according to claim 1, that is transformed so as to be herbicide resistant.

7 (Previously Presented). A transformed *Lemnaceae* plant according to Claim 6, that is transformed so as to be

tolerant to oxynil herbicides, to glyphosphate and EPSPS inhibitor herbicides, to glufosinate or to HPPD inhibitors.

8 (Previously Presented). A transformed *Lemnaceae* plant according to claim 1, capable of expressing two or more foreign genes.

9-11 (Cancelled).

12 (Previously Presented). A method for the stable genetic transformation of *Lemnaceae* whole plants, plant tissue or callus, which comprises:

bringing the *Lemnaceae* whole plant, plant tissue or callus into contact with *Agrobacterium* cells containing a transforming DNA molecule; and

incubating the *Lemnaceae* whole plant, plant tissue or callus with the *Agrobacterium* cells, whereby cells in said whole plant, plant tissue or callus become stably transformed with said DNA.

13 (Original). A method according to Claim 12, wherein the *Agrobacterium* cells are capable of specifically targeting the plant's meristematic tissue.

14 (Previously Presented). A method according to Claim 13, wherein the *Agrobacterium* cells are *A. tumefaciens* strains EHA105, EHA101 or GVE3103.

15 (Original). A method according to Claim 12, wherein the *Agrobacterium* cells are capable of targeting wounded regions in the plant.

16 (Previously Presented). A method according to Claim 15, wherein the *Agrobacterium* is *A. tumefaciens* strains LBA4404 or C58.

17 (Previously Presented). A method according to claim 12, wherein during the incubation of the *Lemnaceae* plant tissue with the *Agrobacterium* cells vacuum infiltration is applied.

18 (Original). A method according to Claim 12, wherein prior to incubation of the *Lemnaceae* plant tissue with the *Agrobacterium* cells the plant's meristematic zone is exposed by removal of the daughter fronds.

19 (Currently Amended). A method for the genetic transformation of a Lemnaceae plant, comprising:

cutting the plant into particles of a size such that they still contain undamaged meristematic tissue capable of developing into full plants;

incubating said particles with *Agrobacterium* cells containing transforming DNA molecules, whereby said transforming DNA is introduced into meristematic cells in said particles; and

producing transformed plants from the transformed meristematic tissue.

20 (Cancelled)

21 (Previously Presented). A method according to Claim 19, wherein the particles have diameters, the average of which is above 150 μm .

22 (Previously Presented). A method according to Claim 21, wherein the particles have diameters, the average of which is about 150 μm to about 750 μm .

23 (Currently Amended). A method for the stable genetic transformation of a *Lemnaceae* plant, comprising microinjecting *Agrobacterium* cells containing a transforming *Agrobacterium* DNA into the meristematic zone of the plant, whereby the meristemic tissue becomes stably transformed with said DNA.

24 (Original). A method according to Claim 23, carried out *in planta*.

25 (Currently Amended). A method for the *in planta* transformation of *Lemnaceae* plants, comprising:

i. exposing the plant's meristematic zone by removal of the daughter fronds;

ii. incubating the plant with *Agrobacterium* cells capable of targeting to the meristemic tissue.

Appln. No. 09/529,172
Amdt. dated March 18, 2004
Reply to Office action of November 18, 2003

26 (Previously Presented). A method according to Claim 25, wherein the *Agrobacterium* cells are *A. tumefaciens* strains EHA105, EHA101 or GVE3103.

27 (Previously Presented). A method according to claim 12, wherein the *Agrobacterium* cells are brought into contact, prior or during the transformation method, with a booster medium capable of enhancing the *Agrobacterium* cell's virulence, said booster medium comprising a fresh cell suspension of dicotyledonous plants or comprising *Lemnaceae* plant extracts.

28 (Currently Amended). A method according to claim 12, wherein the transformation process takes place in a media having a pH below about 5.2.

29 (Previously Presented). A method according to Claim 27, wherein the booster medium comprises a fresh cell suspension obtained from a dicotyledonous plant.

30 (Previously Presented). A method according to claim 29, wherein the fresh cell suspension is at a concentration of 1-10% (w/v).

31 (Previously Presented). A method according to claim 27, further comprising caffeine at a concentration of 100-500 mg per liter of medium.

32 (Previously Presented). A method according to claim 29, wherein the fresh cell suspension of a

Appln. No. 09/529,172
Amdt. dated March 18, 2004
Reply to Office action of November 18, 2003

dicotyledonous plant is obtained from the family of
Solanaceae.

33 (Previously Presented). A method according to claim 27, wherein the booster medium is a plant culture medium having a pH of about 3.5 to 4.2, and comprising 1-10% (w/v) of fresh cell suspension of *Nicotiana tabacum* and 100-500 mg per liter of caffeine.

34 (Original). A method according to Claim 27, wherein the booster medium comprises a *Lemnaceae* plant extract.

35 (Original). A method according to Claim 34, wherein the *Lemnaceae* plant extracts are *Spirodela punctata* extracts.

36 (Currently Amended). A transformed *Lemnaceae* plant obtained by the method of any one of Claims 12 to 19 or 21 to 35.

37-53 (Cancelled).

54 (Previously Presented). A method of production of a product of interest, comprising growing a transformed *Lemnaceae* according to claim 1, encoding said product, in an appropriate culture medium, under conditions enabling the production of said product of interest.

Appln. No. 09/529,172
Amdt. dated March 18, 2004
Reply to Office action of November 18, 2003

55 (Original). The method as claimed in claim 54, wherein the product of interest is further isolated and purified.

56 (Currently Amended). A method as claimed in one of claims 54 and 55, wherein the product of interest is a chemical or a biological product.

57 (Original). A method as claimed in claim 56, wherein the product of interest is selected from the group consisting of polypeptides, proteins, carbohydrates, lipids, alkaloids, pigments or vitamins.

58 (Currently Amended). A method according to Claim 34, wherein the *Lemnaceae* is *Spirodela*.

59-64 (Cancelled)

65 (Currently Amended). A method for the stable genetic transformation of *Lemnaceae* plant tissue, comprising:
inoculating *Lemnaceae* tissue with *Agrobacterium* containing a transforming DNA molecule having a heterologous DNA of interest; and

co-cultivating the tissue with the *Agrobacterium* to produce the stably ~~transferred~~ transformed *Lemnaceae* tissue.

66 (Currently Amended). A ~~genetically stable~~ stably transformed *Lemnaceae* plant, comprising a heterologous DNA of interest integrated into the chromosome, wherein said plant is produced via an *Agrobacterium*-mediated method.

Appln. No. 09/529,172
Amdt. dated March 18, 2004
Reply to Office action of November 18, 2003

67 (Currently Amended). A method of production of a product of interest, comprising:

culturing a stably ~~transferred~~ transformed *Lemnaceae* plant that expresses at least one heterologous product, which plant has been transformed by an *Agrobacterium*-mediated method; and

isolating and purifying said at least one heterologous product.

68 (New). The transformed *Lemnaceae* plant according to claim 2, being *Lemna gibba* Hurfeish.

69 (New). The transformed *Lemnaceae* plant according to claim 2, being *Spirodela oligorrhiza*.

70 (New). The method of claim 23, wherein the *Lemnaceae* plant is *Spirodela oligorrhiza*.

71 (New). A method of production of a product of interest, comprising:

culturing a stably transformed *Lemnaceae* plant that expresses at least one heterologous product, which plant has been transformed by an *Agrobacterium*-mediated method.